

labelled as poisonous, and bear the name and address of the seller; but the latter need not be a registered chemist, as in the case of the scheduled poisons.

On the other hand, greater facilities are given for obtaining certain toxic substances used in agriculture and horticulture. In country places there has often been difficulty in obtaining poisonous insecticides, fungicides, and bactericides, as also sheep-dips and weed-killers containing arsenic or nicotine; it has consequently been enacted that these articles may henceforth be sold by any persons duly licensed for the purpose by the local authority. No doubt this provision will be a convenience in rural districts, and will to this extent assist the farmer in dealing with the pests which encumber agriculture.

C. SIMMONDS.

RAINFALL IN ITALY.¹

THE Italian Meteorological Department has issued an important work on the rainfall of Italy. The tabular matter contains the total precipitation and the number of rain-days for each month of the twenty-six years 1880 to 1905 for 215 of the 700 rainfall stations in connection with the Italian office. The records are not complete in all cases, but fifteen years is the shortest period dealt with. The largest annual total is 90 inches, at Gemona, near the Austrian frontier, the smallest 18·6 inches, at Foggia. On looking through the tables we are struck by the fact that no attempt seems to be made to secure uniformity of exposure for the gauges. The heights above the ground vary between 60 metres and half a metre. A set of excellent coloured plates shows the average rainfall conditions for each month, each season, and for the whole year.

The seasonal variation of rainfall differs widely in different regions. In the extreme north we have a single very pronounced maximum at midsummer, while in Sicily there is an equally pronounced mid-winter maximum. The one curve is almost exactly the reverse of the other. Over the northern plains and in the northern half of the peninsula there are two maxima, one in May, the other in October or November, the latter being the more pronounced. Over the southern half of the peninsula the winter rains make themselves felt, and we find a principal maximum in October and secondary maxima in January and April. The preparation of the work has been in charge of Dr. Filippo Erodius.

SIMPLE STUDIES IN NATURAL HISTORY.²

THE subject of forest trees is such an attractive one and is just now so much to the fore that the little book at the head of our list ought to have a warm reception. It is well illustrated by thirty-two coloured drawings of trees, their leaves, flowers, and fruits, and the text is simply and well written. For children such a work is invaluable, and will enable them to identify trees with great ease. At the present time, when so much ruthless destruction is being effected in country districts by the wholesale felling of young and old timber, it is urgently necessary to emphasise the value of trees. This little book should

¹ "Le precipitazioni atmosferiche in Italia dal 1880 al 1905." Annals dell'Ufficio Centrale Meteorologico e Geodinamico Italiano, vol. xxv., parte i.

² "Trees shown to the Children." By Janet Harvey Kelman, and described by C. E. Smith. Pp. xiv+131; with 32 coloured plates. (Edinburgh and London : T. C. and E. C. Jack.) Price 2s. 6d. net.

"Animals at Home." By W. P. Westell. Pp. 240; 24 plates. (London : Dent and Co., 1908.) Price 3s. 6d.

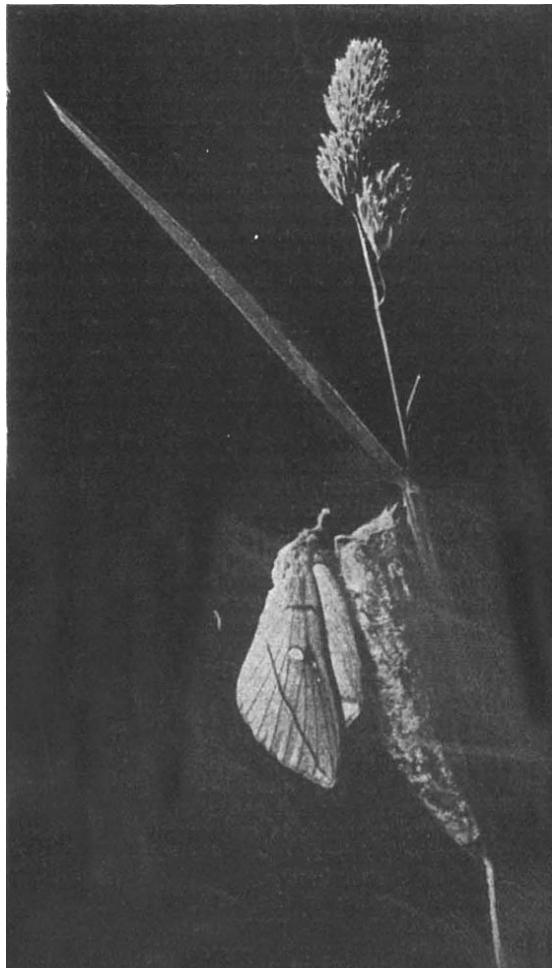
"Nature Study." By J. R. Ainsworth Davis, M.A. Pp. xii+274. (London : Dent and Co., 1908.) Price 2s. 6d.

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be especially useful, not only in teaching the different kinds and their uses, but also in nurturing that affection for the noblest of plants which must be more widely entertained if the policy of devastation is to be checked.

Mr. Westell's stories form a complete contrast to this unassuming work on trees. They consist of reprints from publications of the Society for the Prevention of Cruelty to Animals, and contain a series of sketches of animal life that is disjointed, unorganised, and sententious. There are so many good books on this subject suitable for children that it is difficult to see on what grounds this series has been resuscitated. The affection of the author for flies is



Drinker moth (*Oaonestis potatoria*) just emerged from Cocoon.
From Prof. Ainsworth Davis's "Nature Study."

not a very discriminating one. The pupal stage of the house-fly does not last "some weeks," nor is the blue-bottle fly a desirable acquaintance. The style of the author may be judged from the following reference to the feet of the house-fly:—"The adhesive power of our little feet is not impaired when atmospheric pressure is removed," a sentence that is followed by the naive remark, "I have tried to make (this explanation) as simple as possible, and trust I have succeeded"; or, again, *à propos* of the lapwing, "Notice the lapping movement carried out, after which we have been accorded one of our English names," a sentence that is as cryptic as it is ungainly.

Principal Davis's little book consists of two parts. The first, devoted to plants, gives an admirable *résumé* of their being and well-being, their varieties and adaptations. The second treats in systematic fashion the chief groups of animals, and, though less "biological," is well arranged and packed with information. The illustrations throughout are most attractive, and the plan of the text well designed. For schools the book is certain to be found useful, and the only faults we have to find with it are the attempt to explain everything and the absence of any attempt to give practical directions for the simplest experiment. The first is certainly a serious mistake. The too ready application of the magic word "protection" in regard to colouring, for example, is frequently unjustified, and the bald statement, e.g., that birds are derived from reptiles that rose on aeroplanes, is at least a daring one when its speculative nature is not hinted at. Phylogenetic speculation should be rigorously excluded from elementary teaching.

The absence of experimental advice is a too common drawback to books of this kind, and yet perhaps no method is equal to this one in value. With animals there is always a difficulty in suggesting an experiment that has not an unnatural or even a cruel look, but plants are made for experiment, and a training in that branch of work is one that can be effected cheaply and conveniently. These defects do not, however, prevent this little book from being a fund of attractive information on both animals and plants. The subject-matter is highly compressed, and teachers will find that a single paragraph has to be expanded and illustrated before it can be properly grasped by their pupils. Such compactness is, however, inevitable in a work of such small size and wide compass.

INTERNATIONAL CHART OF THE HEAVENS.

THE permanent committee of the Astrographic Congress of 1887 will meet at the Paris Observatory, April 19 to 24. Our readers will remember that the great international undertaking—the *Carte du Ciel*—was inaugurated at a congress held at Paris in 1887. No astronomer who attended the meeting can forget the man whose name will ever be associated with that work—Admiral Mouchez, then director of the Paris Observatory. But for his earnest and sympathetic character and genial influence it is doubtful if this great work could have been launched at all; it certainly could not have been so with the same prospect of success without his tactful and energetic cooperation.

At that congress a scheme was prepared and a permanent committee appointed to carry the work into execution. The committee in question consisted of eleven members, selected by vote, together with the directors of observatories cooperating in the work whose names did not appear in the original list. This committee met at intervals of from two to four years at Paris until the year 1900 inclusive, but since that time no further meeting of the permanent committee has taken place, and we shall see presently how urgent is the need for the coming meeting.

Broadly speaking, the programme entrusted to the committee was as follows:—

(1) To construct charts of the entire sky, each map measuring $2^\circ \times 2^\circ$, and containing all stars to the thirteenth magnitude.

(2) To catalogue the exact positions and magnitudes of all stars to the eleventh magnitude.

At first the chart appeared, even to some astronomers, to be the more important object to be

realised, but there has been a growing conviction that, for the broad fundamenta of astronomy, the catalogue, though by far the more laborious, is infinitely the more important of the two objects.

The chart, it is true, preserves a permanent record of the state of the sky for a mean epoch about 1900, to which reference can be made, as occasion may arise, in connection with variable stars, and, *after special measures*, it will yield the places of stars fainter than the eleventh magnitude which may be suspected of large proper motion, &c.

But, with the completion of the catalogue, astronomers will be provided with absolute places of all the stars down to the eleventh magnitude, and this will enable them, when the work has been repeated after a sufficient interval, to derive the proper motions of all stars to the eleventh magnitude in the most simple and direct manner, and so to investigate such problems as the precession, the solar motion in space, star-drift, &c., and to discuss the general problems of sidereal astronomy with a completeness unattainable in any other way.

By the complete execution of our present programme we lay upon astronomers of the future the moral compulsion to execute a similar work, say, one hundred years hence, and, in addition, to derive from the three or four millions of proper motions so obtained the broad cosmical conclusions which must follow from the proper discussion of these motions.

This, surely, is a large enough task to bequeath to futurity—a noble bequest indeed if it be left in the complete, permanent and accessible form of a printed catalogue of positions and magnitudes. To leave it in any other form would be to endanger the permanent value of our work by throwing such an undue share of labour upon our successors as almost to justify them in refusing to utilise what we have done.

The work of the chart and of the catalogue was originally divided amongst sixteen observatories, and naturally has proceeded at different rates in different observatories according to their opportunities, the varied energy of their directors, and the means at their disposal. Practically the work has now continued for nearly twenty years, but, of course, a good deal of time was lost at first in the construction of instruments and in experimental research before definite routine work was commenced.

But whilst some of the observatories have nearly completed their share of the work, others are far behind, and it will be an important duty of the present meeting to inquire into the progress of each zone, to divide up the unexecuted work amongst the more active observatories, and to take such other steps as are necessary to bring the whole to an early and satisfactory completion.

In a circular letter addressed to the directors of the cooperating observatories and to others invited to attend the present meeting, M. Baillaud, director of the Paris Observatory, and president of the permanent committee, makes the following requests, viz.:—

(a) That each observatory which, up to the present time, has cooperated in the work, shall prepare a report showing the amount of work done, not only in taking the plates, but in the measurement, reduction, and publication of the results.

(b) That those astronomers who find themselves in a position to aid in the completion of zones which have fallen into arrear either in the matter of taking the plates or in their measurement and reduction, should intimate their readiness to assist in the work.

In entering into the whole question of the present state of the work, and taking such farther steps as